

The Safety **REMINDER**

FEOSH Program

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MIXING BATTERIES – DON'T DO IT

We have always heard that you are not supposed to mix batteries – by type or by age (old versus new ones). Technology continues to grow by leaps and bounds and the new lithium batteries last longer and have better overall performance. However, if you mix a SureFire 3-volt non-rechargeable 123 lithium battery with an Interstate 3-volt non-rechargeable 123 lithium battery you can have an explosive reaction. A worker at Oak Ridge National Laboratory mixed these two batteries in a flashlight thinking they were the same. However, one battery was the type of lithium battery that had a vent safety feature design and when used in a sealed flashlight, the safety feature was partially defeated by not allowing a vent path. The flashlight was in the employee's shirt pocket when it spontaneously combusted and vented inside the flashlight. Luckily the employee barely escaped serious injury and only suffered abrasions and a split/charred shirt pocket.

There is quite a history of 123 flashlight batteries overheating and exploding (not just the brands mentioned above). Some of the accident causes are traced back to being inferior, foreign-made batteries. However, if you mix different brands of batteries, non-chargeable primary batteries with rechargeable ones, or batteries with different charge levels (old versus new) you may cause one of the cells (the stronger cell) to overheat when it discharges rapidly in order to compensate for the weaker cell. This can occur when mixing batteries, as discussed above, even if using batteries made in the United States. Everyone needs to follow common-sense rules as follows:

- Follow the manufacturer's recommendations for which battery to use. Be sure to read the warnings and small print before installing. Don't assume you know!
- **NEVER** mix batteries, not by manufacturer or by type.
- **NEVER** mix old and new batteries. Always remove and replace all the batteries in any device at the same time. Always replace the batteries with batteries from the same package or with the same expiration date.
- Do not carry lithium powered flashlights close to the face or use close to flammable material.

If you would like to read more about what happens when you mix batteries, check out the link to the Consumer Product Safety Commission and do a search for lithium batteries or overheating batteries:
<http://www.cpsc.gov>